CHAPTER 5

Traditional Approach to P2 Implementation

Includes:
- ☐ Introduction
- ☐ Establishing a P2 Program
- ☐ Writing the P2 Program Plan
- ☐ P2 Program Implementation
- ☐ Maintaining the P2 Program
- ☐ Combining the Traditional Approach with the Systems Approach
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INTRODUCTION

A number of models are available for implementing your P2 program. This chapter will focus on a "traditional" model based on the previous editions of this EPA Guide (*Waste Minimization Opportunity Assessment Manual*, EPA/625/7-88/003 and *Facility Pollution Prevention Guide*, EPA/600/R-92/088). Chapter 6 will examine an implementation model that utilizes a formal environmental management system (EMS). Chapter 7 will evaluate the use of a quality model for P2 implementation. This *Guide* will not prescribe or recommend any one of these P2 implementation models. Instead, you can mix and match components to derive a P2 program implementation model that works best in your organization. If you do this, your organization's P2 program is far more likely to be implemented and maintained. This concept will be presented in Chapter 8.

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At the top level (Figure 5-1), the traditional P2 model offers a logical path for implementing P2. First you establish the P2 program using the information provided. Then, you prepare a written P2 plan to describe how the program will be implemented. Next, you execute the program implementation. Finally, you must maintain the P2 program over time.

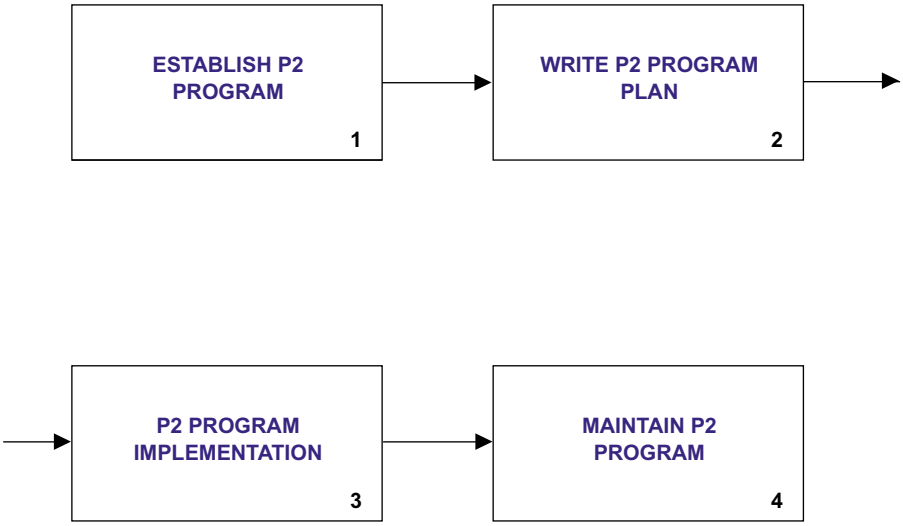

Figure 5-1. Top-level Depiction of the Traditional Approach to Pollution Prevention Implementation.

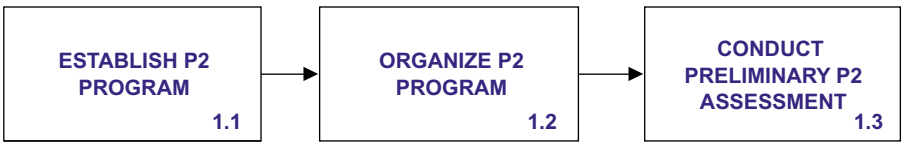

Figure 5-2. Establishing a P2 Program.

Let's look at the details in each of these steps to see how the information in this *Guide* can ease the implementation using the traditional approach to P2.

ESTABLISHING A P2 PROGRAM

The traditional approach has a "top-down" focus.

The traditional approach has a "top-down" focus. This approach, as presented in the earlier EPA publications (Figure 5-2), begins with getting management approval and setting program goals *before* P2 information is collected. The first step is to obtain an executive-level decision to establish the P2 program. This decision is communicated to the workforce using a policy statement. Consensus-building efforts will promote acceptance of this policy statement.

To organize the P2 program, management names a P2 task force and states goals before any formal information is gathered. Goals that are established upfront for a P2 program challenge the effort.

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Under the traditional approach, the task force next conducts a preliminary P2 assessment to collect some P2 data, reviews sites for future P2 studies, and establishes the priorities for the P2 program. A preliminary assessment is necessary to gather information for the written P2 plan (Figure 5-2, work step 1.3). Some organizations may consider conducting this preliminary assessment prior to work steps 1.1 and 1.2 (see Figure 5-2). The traditional approach views the preliminary assessment as a "walk-through" activity to be performed by a team of employees or by an outside service provider or process expert.

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The Systems Approach described in Chapter 4 of this *Guide* allows for some "bottom-up" efforts before the endorsement of senior management. Using the process-mapping tool described in Chapter 4 of this *Guide* gives the team a more complete understanding of the processes (including the ancillary and intermittent processes). This leads to a more complete listing of opportunities for P2. Pareto analysis can be used to rank order the opportunities for P2. The organizational management can then propose goals based on a more complete assessment of the P2 opportunities and establish clear priorities for the program. Goals could be stated in the action plans for each year instead of as program goals. These ideas show how you can organize this part of the P2 program using the tools presented in this *Guide*.

WRITING THE P2 PROGRAM PLAN

The traditional approach next addresses writing the P2 program plan (Figure 5-3). A good planning effort makes careful note of what the stakeholders want in the program. These are the interested parties or external groups described in the quality-based implementation model (see Chapter 7). Stakeholders may include the following: customers, suppliers, employees, regulators, environmental interest groups, community organizations, stockholders, and anyone else with a stake in the outcome of the P2 program.

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The P2 plan should state clear objectives for the P2 program. It should anticipate obstacles to program implementation and plan means to overcome them. A good planning effort addresses these obstacles during the preparation of the plan. Finally, the P2 plan requires a firm schedule. It can be a challenge to set a schedule based solely on the information gathered to this point, but a schedule is essential for management to track the plan's progress during the course of the year.

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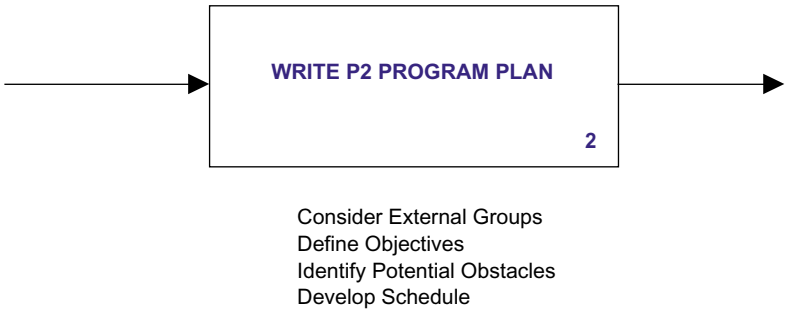

Figure 5-3. Writing the P2 Program Plan.

Earlier in this *Guide* (Chapter 4), action plans were described. The action plan is a tool that can be used to address all the concerns that can arise when writing a P2 program plan. Each organization should have an action plan for each P2 project conducted in the P2 program. The collection of these action plans (many organizations implement 8 to 11 P2 action plans in a typical year) constitutes the major portion of the P2 plan. The other part of the P2 plan outlines the management structure within which these plans will be used and reviewed during the course of the year. The objectives of the program should reflect the vision and mission statements for the P2 efforts.

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P2 PROGRAM IMPLEMENTATION

In the traditional approach the detailed P2 assessment is the starting point of the program implementation phase (Figure 5-4). An assessment team is assembled for this task. It is not defined as a worker team but rather as a higher-level, multidisciplinary team which may

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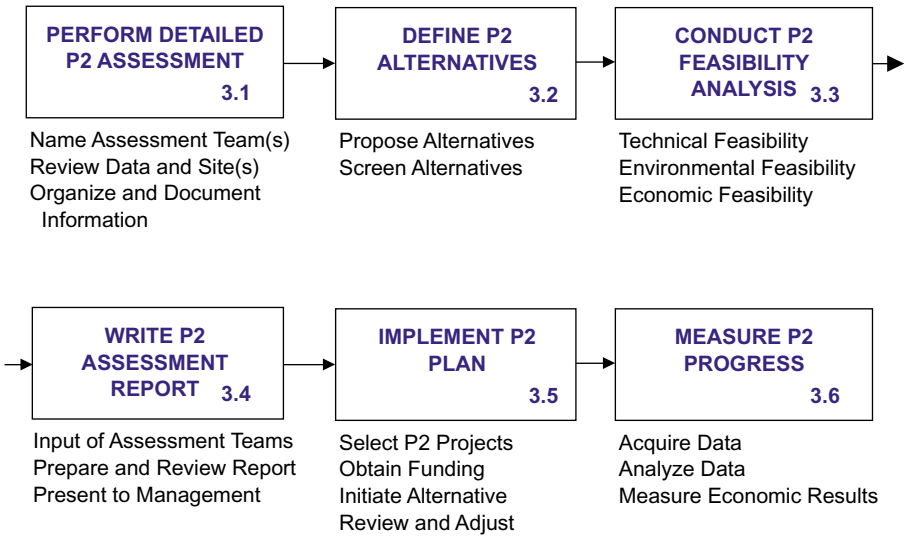

Figure 5-4. P2 Program Implementation.

include some employees. Checklists and worksheets are provided to help the team collect data and information. This assessment team will review the data and visit the sites where the P2 activity is planned to occur.

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The purpose of the detailed assessment is to help the team derive alternatives (called "options" in the previous publications) for P2. The team uses brainstorming as a tool to find potential alternatives. The traditional approach does not formally include root cause analysis before deriving alternatives.

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Based on the detailed assessment, the assessment team proposes a number of P2 alternatives and screens them to help focus on the implementation that will follow. Most of the P2 industry-specific manuals provided a limited number of alternatives, so the screening was fairly straightforward. The traditional approach model uses criteria matrices for screening. Once screening is complete, it is time for a feasibility analysis of the priority alternatives. Of course, not all P2 alternatives require such formal analysis. Quick wins or "low-hanging fruit" P2 alternatives can proceed more expediently. They do not compete for capital funding. When an alternative requires some capital funding to implement, it is frequently subjected to a technical feasibility study, a determination of its environmental feasibility, and finally a determination of the economic feasibility. At this point, the traditional approach requires the preparation of a formal, written P2 assessment report. This report details the analysis of the P2 assessment team and allows that information to be presented to management in a formal manner after a review by the P2 task force. Once the P2 projects have been

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selected, the traditional approach has the P2 team obtain funding and initiate work on the alternative. The work is reviewed and adjusted during execution to make sure it meets the objectives. There is no requirement in the traditional approach to prepare a formal action plan. The P2 implementation team reviews its progress on an informal basis and makes necessary adjustments to enhance the P2 effort.

The final step in the traditional P2 program implementation is to measure P2 progress. Data is acquired from the implementation phase and analyzed. The traditional approach recommends the measurement of economic results.

MAINTAINING THE P2 PROGRAM

At this stage, the traditional approach shifts to the maintenance of the P2 program.

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This program maintenance begins with the integration of the P2 program into other formal corporate P2 initiatives. These programs could include safety, quality, preventive maintenance, lean manufacturing, and so on. Accountability for wastes are assigned to the generating process. All wastes are carefully tracked and formally reported in the organization. The program results are evaluated annually.

Educational training for those who participate in the P2 program needs to be specified.

Educational training for those who participate in the P2 program needs to be specified. No tools are taught in the traditional approach; however, the participants do become familiar with the process. Training is provided to new employees to orient them to P2. Advanced training is provided to those most involved with the P2 program. Each year, every employee needs to be updated on knowledge of P2.

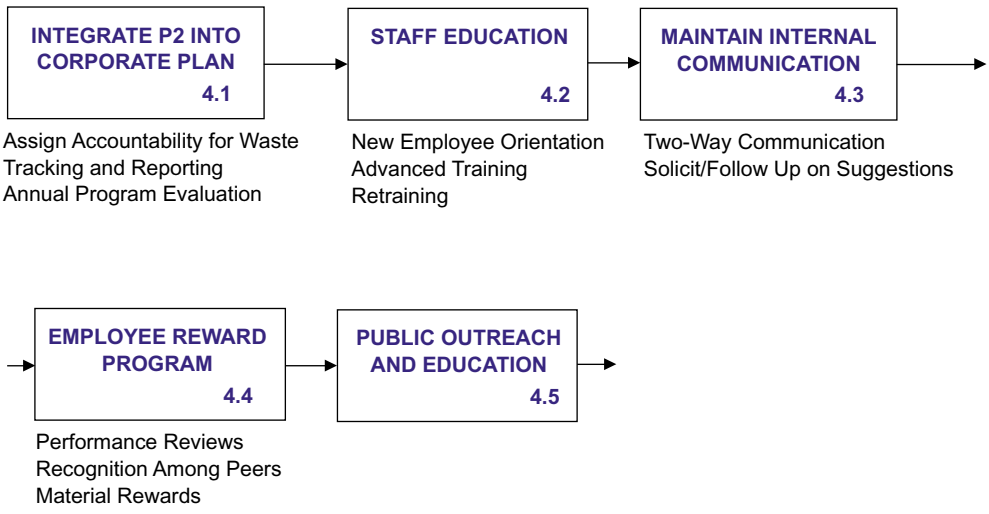

Figure 5-5. Maintaining the P2 Program.

The traditional approach looks at all routine communications and finds ways to encourage them.

Communication is important to any program. The traditional approach looks at all routine communications and finds ways to encourage them. It also promotes the solicitation and follow-up of employee suggestions.

As an incentive for participation in the P2 program, the traditional approach includes an employee reward program. It features performance reviews, recognition among peers, and material rewards. Finally the traditional approach recommends a public outreach and educational program.

More information on the traditional approach, including copies of the previous EPA publications, can be found on the CD-ROM that accompanies this *Guide*. All the checklists and worksheets from the traditional approach are provided on that CD-ROM.

COMBINING THE TRADITIONAL APPROACH WITH THE SYSTEMS APPROACH

The traditional approach recommends a public outreach and educational program.

Many of the readers of this *Guide* have been using the traditional approach for years. The process maps provided here and in Chapter 1 should help you use this approach more effectively. You may have begun to consider changes you might make to the approach that will work well for you. It is instructive to prepare a process map of your approach to P2 so everyone in your program can understand it clearly.

The Systems Approach tools presented in this Guide *can be used to enhance the effectiveness of the traditional approach.*

The Systems Approach tools presented in this *Guide* can be used to enhance the effectiveness of the traditional approach. One area where improvement can be made is in the process characterization. It is easier for management and team members to "*see*" the process maps. Having piles of information and checklists to review can be far more daunting. The process maps also enable the team to focus on certain areas that offer the best opportunities for P2.

Process mapping can be conducted by those interested in promoting P2 before going to management for commitment to the program. It may be a wise decision to let them understand what opportunities await them if they approve this program. Process maps will typically find more opportunities for P2 than a walk-through or preliminary assessment.

Another potential improvement is in the use of root cause analysis to examine why a selected P2 opportunity has a problem associated with the use of a regulated material or a regulated loss.

Another potential improvement is in the use of root cause analysis to examine why a selected P2 opportunity has a problem associated with the use of a regulated material or a regulated loss. Experiments have been conducted with P2 teams to test the theory that root cause analysis will lead to better alternative generation. A team that does not use root cause analysis and goes directly from the selection of the P2 opportunity to the generation of alternatives typically is capable of specifying two to four alternatives. In contrast, a team that uses root cause analysis first and then tries to generate alternatives will come up with

18 to 40+ alternatives. Many of the alternatives derived in the former case may not finish in the top-10 listing after the longer list of alternatives is prioritized. The cause-and-effect diagram is the most widely used problem-solving tool in the world. It deserves consideration in the implementation of your P2 program.

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The issue of goal setting is very important in P2. The traditional approach sets goals up front. Many state-mandated P2 programs also set statewide goals at the start of the program. In the Systems Approach, the organization sets performance goals in the action plans after the information on P2 has been gathered and evaluated. They are set year-by-year and project-by-project. The sum of all the action plan performance goals is the overall performance goal of the year. Some quality experts believe that goal setting is rarely done properly. They argue that one should measure continual improvement and always increase the amount of P2 accomplished, no matter how small they may be. There should also be no backsliding in areas in which improvements have already been made. This sort of seemingly incremental improvement can yield large breakthroughs as P2 program participants learn how to master change.

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The basics of the traditional approach can be integrated with the lessons of the Systems Approach. They work well together and allow the organization to make continual improvement in the conduct of the traditional P2 program.

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APPROACHES FOR VERY SMALL ORGANIZATIONS

One argument for retaining the traditional approach exclusively was that it worked well for very small organizations. The tools of the Systems Approach were sometimes thought to take too long to use and to be too difficult for very small organizations to master. Some observers thought that these organizations would have to rely on outside P2 technical assistance providers to help them with P2 alternatives.

The following case study illustrates how the Systems Approach could be used by small organizations to complement the use of the traditional approach. Use of this Systems Approach does not rule out the traditional approach, but illustrates how the tools that are presented in this *Guide* might increase the effectiveness of the traditional approach.

EPA funded the development of a publication called *Nothing to Waste* (Reference 5-1) for its Environmental Justice program. This publication uses the Systems Approach for dealing with very small businesses. A model for helping very small organizations succeed was developed by a team lead by a not-for-profit group, Working Capital. They formed groups of leaders of very small organizations who met on a regular basis outside of working hours. A facilitator helped them work through some modules that taught them how to write a business plan and how to apply for a loan. Banks provided the groups with money to

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loan. When the group determined that a member was qualified for a loan, the group had the power to grant that loan. The bank stipulated that if the person missed any payments, everyone in the group was dunned and could not get a loan for a specified period of time. This stipulation made the members of the group work together better so that everyone paid back loans. Banks were very happy with the results. Previously, typical loan defaults for this segment were as high as 60%. Using this model, loan defaults dropped to less than 10%.

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It became obvious that these small organizations could not afford any waste. Their initial loan could only be $500. If an individual borrower wasted any of this money, the entire group would be less successful. For example, a small furniture maker needed to know that finish overspray led to the loss of some of the valuable finish that was purchased. The furniture maker had to find out how more of that finish could be placed on the furniture to reduce the waste.

In the *Nothing to Waste* program, leaders from very small organizations still meet regularly in off-work hours in teams of five to seven companies. They use the Systems Approach tools under the guidance of a group facilitator trained in the use of the tools. They map each other's processes, apply the tools to identify opportunities for P2, and derive and select alternatives for dealing with the losses. The group facilitator also helps provide the group members with P2 information and resources that may be needed to implement the selected P2 alternative. States that have adopted this model (e.g., New Mexico, Maine, and Massachusetts) have been able to make better use of their technical assistance providers by having them "visit" with many small organizations at once instead of making many trips to separate operations.

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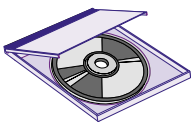
Very small organizations may not have the technical capability to follow the formal traditional approach on their own. However, they can master the problem-solving and decision-making tools quickly and use them to communicate effectively with one another, even though they do not actually work together. They can learn how to communicate better with their customers, suppliers, and lending institutions as a result of learning how to use these tools. Action plans allow the group to track each other's progress. These plans are reviewed at each meeting.



Nothing to Waste has been formally adopted for use in the Green Zia Program in New Mexico (Reference 5-1). This publication is available on the Internet and can be found on the CD-ROM. It can be used by P2 teams in larger companies to help worker teams get an understanding of the use of the tools in the Systems Approach without an expensive training program.

OTHER IMPLEMENTATION APPROACHES

Chapter 6 will examine how an organization can use the environmental management system (EMS) to help implement a P2 program. This is an important implementation model since many organizations are now considering this type of EMS (i.e., ISO 14001, EMAS, etc.). Chapter 7 will examine how an organization can use a quality-based program like the Baldrige approach to implement a P2 program. A prevention-based approach is built into the criteria that allow an organization to compare itself to organizations which have achieved environmental excellence. An organization that scores well in the rating system should have a significant amount of P2 in its operations.

Process maps have been prepared in each of these chapters so you can compare them to the process maps in this chapter. By using this tool, you will be able to select the approach that is most effective for you and compare it to the implementation approaches provided in this *Guide*. Chapter 8 will provide some tips on how to mix and match these implementation approaches.

REFERENCE

5-1. Nothing to Waste Manual
http://www.pojasek-associates.com/Reprints/Nothing-to-Waste.pdf